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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/803,333

03/17/2004

WonSun Shin

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02/04/2005

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EXAMINER

LUU, CHUONG A

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/803,333

Applicant(s)

SHIN ET AL.

Examiner

Chuong A. Luu

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-42 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 36-42 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/574,541.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/30/2004</u> . | 6) <input type="checkbox"/> Other: ____ |

PRIOR ART REJECTIONS

Statutory Basis

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The Rejections

Claims 36-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Kinsman (U.S. 6,172,419 B1).

Kinsman discloses a semiconductor package device

(36) a substrate having a first surface (102), an opposite second surface, and central through hole between the first and second surfaces (see Figure 2);

a plurality of electrically conductive circuit patterns (104, 106) on each of the first and second surfaces of the substrate (102), wherein the circuit patterns of each of the first and second surfaces include a plurality of lands, the circuit patterns of the second surface also include a plurality of bond fingers (110, 124), and at least some of the circuit patterns of the first surface are electrically connected through the substrate (102) to some of the circuit patterns of the second surface (see Figure 2);

a semiconductor chip (120) in said through hole, wherein the semiconductor chip (120) has a first surface flush with the first surface of the substrate (102), and an opposite second surface including a plurality of conductive pads, the pads being oriented in a same direction as the second surface of the substrate (102);

a plurality of conductive connecting means, wherein each of the conductive connecting means is electrically connected between a respective one of the pads (122) of the second surface of the semiconductor chip (120) and a respective one of the bond fingers (110, 124) of the circuit patterns of the second surface of the substrate (102);

a hardened encapsulant (126) within said through hole and covering the semiconductor chip (120) therein, the bond fingers (110, 124), the pads (122), and the conductive connecting means (104, 106), wherein the lands of the circuit patterns of each of the first and second surfaces of the substrate (102) are outward of a perimeter of the encapsulant (126);

a plurality of electrically conductive balls (112) each fused to a respective one of the lands of the circuit patterns of the first surface of the substrate (102) (see Figure 2);

(37) wherein the substrate further comprises a cover coat over the circuit patterns of the first and second surfaces of the substrate, wherein the respective lands and bond fingers are not covered by the cover coat (see Figure 2);

(38) further comprising a plurality of second electrically conductive balls each fused to a respective one of the ball lands of the second surface of the substrate (see Figure 2).

The recitation that stackable semiconductor package has not been given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. *Kropa v. Robie*, 88 USPQ 478 (CCPA 1951).

Claims 39-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinsman (U.S. 6,172,419 B1) in view of Akram et al. (U.S. 6,313,522 B1).

Kinsman teaches the outlined feature above except for a second chip package. However, Akram discloses a stacked semiconductor package device with **(39); (40); (41); (42)**..... a second chip package (see Figures 2-6). It would have been an obvious matter of design choice to integrate individual package into a stackable structure to meet its performance require, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955); also

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since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Doing so would facilitate the manufacture of the semiconductor device and improve the productivity of a semiconductor structure.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong A. Luu whose telephone number is (571) 272-1902. The examiner can normally be reached on M-F (6:15-2:45).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Chuong Anh Luu
Examiner
February 1, 2005